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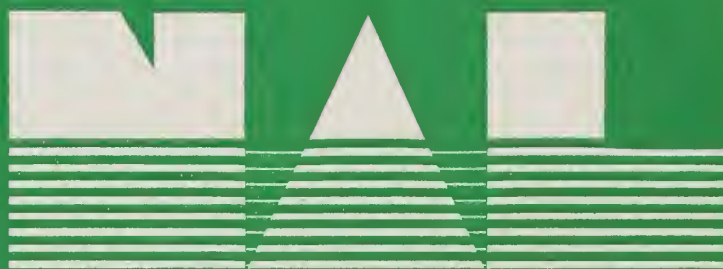
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**GUIDES FOR
WRITING AND EVALUATING
QUANTITY RECIPES
FOR TYPE A SCHOOL LUNCHES**

U.S. DEPARTMENT OF AGRICULTURE

WASHINGTON, D.C.

**United States
Department of
Agriculture**



National Agricultural Library

The National School Lunch Act was passed by Congress as a means of providing nutritious, reasonably priced lunches to school children. In addition to being a basic part of the nutritional and educational programs of the Nation, the School Lunch Program has become an important segment of the food industry by expanding the Nation's markets for food.

This publication has been prepared to facilitate the work of the U.S. Department of Agriculture in providing technical assistance in the development of materials for school lunch and to help provide those responsible for preparing the lunches with recipes from all sources written more uniformly.

Effective use of this publication requires an understanding of the operations of the National School Lunch Program. The following school lunch publications published by the U.S. Department of Agriculture are basic references:

- Quantity Recipes for Type A School Lunches, PA-631. October 1965
- Food Buying Guide for Type A School Lunches, PA-270. January 1964
- A Menu Planning Guide for Type A School Lunches, PA-719. May 1966

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U.S. DEPARTMENT OF AGRICULTURE

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The Type A Lunch Pattern

THE TYPE A LUNCH PATTERN is a guide to well-balanced lunches. It is designed to help in planning lunches that supply the kind and amount of foods boys and girls need. To meet the requirements of the National School Lunch Program, the Type A lunch must contain as a minimum:

WHOLE MILK

1/2 pint fluid whole milk served as a beverage.

PROTEIN-RICH FOODS

2 ounces (edible portion as served) of lean meat, poultry, or fish; or

2 ounces of cheese; or

1 egg; or

1/2 cup of cooked dry beans or peas; or

4 tablespoons of peanut butter; or

An equivalent quantity of any combination of the above-listed foods.

To be counted in meeting this requirement, these foods must be served in a main dish, or in a main dish and one other menu item.

VEGETABLES AND FRUITS

A 3/4-cup serving consisting of 2 or more vegetables or fruits or both, in raw or cooked form. A serving (1/4 cup or more) of full-strength vegetable or fruit juice may be counted to meet not more than 1/4 cup of this requirement.

Since studies show that vitamin A, vitamin C, and iron are frequently short in children's diets, special attention should be given to foods containing these nutrients. It is important to include: a vitamin C vegetable or fruit in the lunch every day, a vitamin A vegetable or fruit in the lunch twice a week, and several foods for iron each day. For a listing of these foods, see *A Menu Planning Guide for Type A School Lunches* (5).¹

BREAD

1 slice of whole-grain or enriched bread; or a serving of other bread such as cornbread, biscuits, rolls, muffins, made of whole-grain or enriched meal or flour.

BUTTER OR FORTIFIED MARGARINE

2 teaspoons of butter or fortified margarine.

This may be used as a spread on bread, as a seasoning, or in the preparation of other foods in the lunch.

The five food groups of the pattern listed above form the foundation of the lunch. When these foods are used in the amounts specified and in combination with OTHER FOODS needed to satisfy the appetite, the lunches served will generally meet one-third of the daily dietary allowances recommended by the National Research Council for 9- to 12- year old boys and girls.

To meet the nutritional needs of teenagers (particularly boys) it is important to serve larger portions or seconds of protein-rich main dish items and other foods in the lunch.

Since pre-school children and younger children in the elementary grades are not always able to eat the full Type A lunch, the regulations permit serving lesser amounts of three components in the lunch—Protein-Rich Food, Vegetables and Fruits, and Butter or Margarine—provided that such allowances are based on the lesser food needs of these children.

¹ Numbers in parentheses refer to References, p. 27.

GUIDES FOR WRITING AND EVALUATING QUANTITY RECIPES FOR TYPE A SCHOOL LUNCHES

Introduction

The information presented in this publication includes criteria and standards used by the U.S. Department of Agriculture in writing and evaluating quantity recipes developed for use in preparing Type A lunches in schools participating in the National School Lunch Program. The guides are those that were used in writing "Quantity Recipes for Type A School Lunches," U.S. Department of Agriculture Program Aid 631, October 1965, (8).

Schools participating in the National School Lunch Program are required to serve lunches according to the Type A lunch pattern (page 2) in order to receive federal assistance. Recipes are valuable when they make a specified contribution to Type A school lunches.

Members of the food industry developing recipes for use in school lunch programs will find these guides useful in writing and evaluating their recipes so they are consistent with those published by the U.S. Department of Agriculture for Type A school lunches.

School lunch supervisors will find these guides useful in analyzing their recipes, developing marketing orders, and determining how well their recipes comply with Type A requirements.

Basic information is presented in the publication in two parts. Part 1 includes directions for writing recipes, menu suggestions, and marketing guides. Part 2 discusses methods and guides for evaluating the recipes for their contributions to the Type A lunch.

Supplementary material and tables are presented in appendices A, B, and C. Appendix A includes decimal equivalents in parts of one pound, one cup, and one gallon; and the rules for rounding weights and volume measures. Appendix B is composed of a table of weights of one-cup measures of foods commonly used in recipes. Appendix C is a worksheet for calculating the contribution of a recipe to the Type A lunch requirements.

SAMPLE RECIPE CARD

from "Quantity Recipes for Type A School Lunches," PA-631

(FRONT)

BEEF STEW			
Protein-Rich Food/Vegetable			Main Dishes D-17
Ingredients	100 portions		For ____ portions
	Weights	Measures	Directions
Boneless stew beef, cubed.	19 lb 4 oz		1. Brown beef in fat. 2. Add water and simmer 2-1/2 hours or until meat is tender. Add more water if needed.
Oil or fat, melted	1 lb	2 cups	
Water		4-1/2 gal	
All-purpose flour	2 lb	2 qt	3. Skim off fat and blend with flour and salt. Stir into beef mixture. Cook and stir constantly until thickened.
Salt	4-1/4 oz	1/2 cup	
★ Onions, quartered	1 lb 4 oz	1 qt 1/4 cup	4. Boil or steam vegetables until tender (card J-4). 5. Add to meat mixture; combine carefully.
★ Potatoes, diced	9 lb	1 gal 2-1/4 qt	
★ Carrots, diced	7 lb	1 gal 1-1/2 qt	
★ Celery, cut in 1-inch pieces.	4 lb	3-1/2 qt	

PORTION: 1 cup—provides 2 ounces cooked meat and 1/2 cup vegetable.
 Cost per portion _____

VARIATIONS

a. LAMB STEW: Use 19 lb 4 oz boneless stew lamb in place of beef. Portion as in basic recipe.
 b. LAMB OR BEEF PIE: Place hot stew mixture in 4 baking pans (about 12 by 20 by 2 inches) about 1-1/4 gal per pan. Top with biscuits (card B-1) and bake. One portion provides 2 ounces cooked meat, 1/2 cup vegetable, and a serving of bread.

★ See Marketing Guide on back of card. (over)

(BACK)

BEEF STEW—Continued		
MENU SUGGESTIONS		
<i>Beef Stew</i> Jellyed Citrus Salad Whole Wheat Bread Butter or Margarine Milk Coconut Cream Pie	<i>Beef Stew/Dumpling</i> Oranges Slices and Pineapple Chunks Bread Butter or Margarine Milk Bulgur Sand Tart	
MARKETING GUIDE FOR SELECTED ITEMS		
Food as purchased	For 100-portion recipe	For ____ portion recipe
Mature onions	1 lb 6-1/2 oz	
Potatoes	11 lb 2 oz	
Carrots, without tops	8 lb 10 oz	
Celery	5 lb 6 oz	

Part 1.--Writing Quantity Recipes for Type A School Lunches

Part 1 of this guide consists of three sections. The first section, Writing Recipes and Variations, explains the format and mechanics for writing recipes and variations. The second section, Writing Menu Suggestions, provides guidance on when and how to include menus on selected recipe cards. The third section, Writing a Marketing Guide, presents instructions for developing and calculating a marketing guide for a recipe.

A sample recipe card from Quantity Recipes for Type A School Lunches (8) is included (page 4) to help interpret and illustrate the instructions for writing school lunch recipes.

WRITING RECIPES AND VARIATIONS

This section contains information needed to write school lunch recipes and variations of the recipes. Most school lunch recipes are written for 100 portions. Recipes for breads, sauces, and salad dressings may be written for specified amounts such as 7 loaves or 1 gallon. The sample recipe card (page 4) should be consulted frequently when reading the material in this section. Examples are given in the text when they are not shown on the sample card.

Format

Recipes are set up in chart form, each on a separate 5- by 8-inch card. They are headed with the recipe name, classification of the kind of contribution to the lunch, name of section and card number in the recipe file (8). From left to right across the card are columns for listing the ingredients, the quantity of each ingredient needed for the number of portions in both weight and volume measure, a blank column for the quantity of each ingredient needed for the number of portions usually prepared in the school, and the recipe directions. At the bottom of the recipe the portion size is given and, when appropriate, the contribution made to the Type A lunch requirements is included. Space is also provided for recording the cost per portion. Variations of the recipes are included when appropriate.

Ingredients, quantities, and directions are listed in their respective columns in block form. A procedure or series of closely related procedures in the directions column is directly opposite the ingredient or group of ingredients to which it refers. Each major procedure with the corresponding ingredients is separated from the next procedure by a horizontal rule.

If two or more lines are required for an entry in the ingredients, weights, or measures column, the overrun is indented two spaces. When the entry is on one line, leaders are used to fill out the line as necessary. Leaders are also used when there is no entry in one or the other of the columns for quantity. A period is used after an overrun.

Examples:

Oil or fat, melted	1 lb	2 cups
Water . . . . .	. . . . .	4-1/2 gal
*Celery, cut in 1-inch pieces.	4 lb	3-1/2 qt

*For information about asterisk (or star), see page 18.

If directions for a recipe are continued on the back of the card, “(Continued on back)” is written in parentheses at the bottom of the directions column. If variations, menus, or marketing guide appear on the back of the card, “(over)” is written in parentheses at the bottom of the card (see sample card, page 4).

When any part of the recipe is on the back of the card, the recipe name is repeated at top center of the card and the word “Continued” is added. For example, “BEEF STEW—Continued.” Card number, section, and classification are not repeated. All column headings are repeated even when entries are made in only the directions column.

Recipe Name

The recipe name describes the food—a simple, factual name indicating the chief ingredient(s) and general method of preparation, such as BRAISED BEEF, CREAMED TURKEY, HOT POTATO SALAD, or a name readily understood, such as SHEPHERD’S PIE, TURKEY A LA KING, WALDORF SALAD.

In general, a hyphen is used rather than the word “and” in combination foods—MEAT-POTATOBURGERS, PEANUT BUTTER-RAISIN COOKIES.

Classification of the Kind of Contribution

Classification of the kind of contribution(s) to the Type A lunch requirements is listed for easy reference in menu planning. Kinds of contribution may be Protein-Rich Food, Vegetable, Fruit, Bread, or a combination of these. Some recipes may not make a contribution toward the requirements. (See instructions for evaluating school lunch recipes in Part 2, page 23).

Section and Card Number

Recipes and related materials in the recipe file (8) are grouped in 11 sections as follows:

<i>Name of Section</i>	<i>Section Designation</i>
General Information	A —
Cereal Products	B —
Desserts	C —
Main Dishes	D —

*Name of Section**Section Designation*

Salads	E —
Salad Dressings	F —
Sandwiches	G —
Sauces and Gravies	H —
Soups	I —
Vegetables	J —
Classification of Recipes	K —

At the front of each section is a divider card on which is printed an index for the section, including general information cards, recipes, and variations of recipes. General information cards are placed first in a section and are followed by recipes arranged alphabetically and numbered consecutively.

Ingredients

All ingredients in the recipe are listed in the order in which they are to be used during preparation. Groups of ingredients that are to be blended or cooked before mixing with other ingredients are listed first on the recipe card so these ingredients are ready when needed later. Examples of these groups of ingredients are:

Dry ingredients used in making cakes and cookies.

Macaroni or spaghetti cooked for use in recipe.

Descriptive terms are used to clearly define kind and form of each ingredient to be used. Descriptive terms tell in what form a food was purchased and what preparation has been done to the food before it is used in the recipe.

Descriptive terms *before* the name of the ingredient designate kind and form of food as purchased, or cooking or heating required before the food is used. The following examples show use of descriptive terms *before* the name of the ingredient for food items as purchased:

Canned tomatoes

Frozen chopped broccoli

Canned diced beets

Boneless stew beef

Active dry yeast

Rolled oats

The following examples show use of descriptive terms *before* the ingredient name for foods that have been cooked or heated:

Cooked turkey

Cooked sweetpotatoes

Cooked rice

Hot milk

Boiling water

Hard-cooked eggs

Descriptive terms *after* the ingredient name designate preparation necessary to make the form of the ingredient different from the form as purchased or cooked. The following examples show the use of descriptive terms *after* the ingredient name:

Canned diced beets, *drained*
Cooked turkey, *diced*
Boneless stew beef, *cubed*

Onions, *chopped*
Celery, *cut in 1-inch pieces*
Apples, *pared, sliced*

Ingredients prepared according to a recipe or instruction card in the recipe file (8) should refer to the file card number in parentheses following the ingredient name. Examples of this kind of reference are:

Cooked rice (*card B-5*)

Cooked potatoes, diced (*card J-4*)

Unbaked pastry (*card C-19, recipe for
15 single crusts*)

Optional ingredients are designated by the words "if desired" placed in parentheses after the ingredient name and description. Ingredients such as spices, chopped nuts, or garnishes, which are not essential for good flavor, are optional.

Red food coloring (*if desired*)
Cinnamon (*if desired*)

Canned mushroom pieces, drained
(*if desired*)

Ingredients that have a preparation loss or gain or are purchased in units other than those specified in the recipe are marked with an asterisk (or star) in front of the ingredient name and description. This asterisk (or star) refers to a footnote, "See Marketing Guide on back of card." Directions for writing a marketing guide for selected items are included in the section beginning on page 18. The following are examples of ingredients marked with an asterisk to indicate that marketing information is provided on the back of the card:

*Onions, chopped
*Canned tomatoes

*Cooked rice
*Frozen broccoli spears

Weights and Measures

The quantity of each ingredient is given in both weight and volume measure whenever it is practical to do so. *Weight alone* is used for foods that are not easily measured accurately such as meats, uncooked fish, and fresh, whole vegetables. *Volume measure alone* is used for liquids such as water, broth, and milk. *Volume measure alone* is also used for small quantities of foods weighing less than 2 ounces unless the weight is exactly 1/4 ounce or a multiple of it. In some instances, quantity is indicated by number under the "Measures" column instead of weight or volume such as "100" for hamburger rolls and "100 large" for hard-cooked eggs.

Weights.—Weights are given in pounds and ounces. Fractions of a pound are not used; that is, 5 lb 4 oz (not 5-1/4 lb), 8 oz (not 1/2 lb). Fractions of an ounce are used as needed when weights of ingredients are less than 2 lb 8 oz; for example, 3-1/4 oz, 5-1/2 oz, 1 lb 12-1/2 oz. Fractions are rounded to whole ounces when the weight of the ingredient is more

than 2 lb 8 oz; for example, 2 lb 8-1/2 oz = 2 lb 9 oz. In this way, the rounding error is no more than that encountered in food measurements.

Standard weights of foods in 1-cup measure are given in appendix table 7 (page 32) for converting volume measures to weights. In developing standardized recipes, it is often necessary to round weights and volume measures of ingredients to common fractions. Rules for rounding weights and volume measures of recipe ingredients are given in appendix table 5 (page 29).

Volume measures.—Volume measure is stated in terms of standard measuring utensils—teaspoons, tablespoons, cups, quarts, gallons. Pints are not used in school lunch recipes. Some equivalent food measures are given on card A-2 in the recipe file (8).

Flour is given in volume measures no larger than quarts because flour packs excessively when larger measures are used. If an ingredient must be sifted or packed before it can be measured accurately, the word “sifted” or “packed” is placed after the quantity.

Examples: Dried whole eggs 3 Tbsp, sifted
Regular brown sugar 2 cups, packed

Abbreviations for weights and volume measures.—The following abbreviations are used in writing quantities of ingredients:

Teaspoon	tsp
Tablespoon	Tbsp
Ounce	oz
Quart	qt
Gallon	gal
Pound	lb

The word “cup” is not abbreviated.—Periods are not used after the above abbreviations to save space in printing.

Fractions of quarts and gallons.—Fractions of quarts and gallons are expressed in the simplest terms. For quantities larger than 1 quart, the use of more than one fraction in a measurement is avoided by converting any fraction of a quart to cups. Examples of preferred ways of expressing quantities that involve fractions are as follows:

1 cup (*Not* 1/4 qt)
1-1/4 qt (*Not* 1 qt 1 cup)
1 gal 1/4 qt *Or* 1 gal 1 cup
1-1/4 gal (*Not* 1 gal 1 qt)
1 gal 1-1/4 qt (*Not* 1 gal 1 qt 1 cup)
1 qt 2-1/2 cups (*Not* 1-1/2 qt 1/2 cup)
1 gal 2 qt 1-1/2 cups (*Not* 1 gal 2-1/4 qt 1/2 cup)

For _____ portions

This column is to be used by schools for entering the quantity of each ingredient needed when more or less than 100 portions are being prepared.

Directions

Directions are written so that each procedure or series of closely related procedures is a separate, numbered paragraph. Groups of related procedures and the ingredients used are separated by a horizontal rule.

Procedures are in the order in which they are logically performed. All ingredients are mentioned in the directions either separately in the order listed or collectively (see steps 1 and 4 of the directions on the sample recipe card, page 4).

Collective terms are used whenever appropriate.

Examples: Instead of saying, "Blend flour, cornstarch, sugar, cocoa, salt, and baking powder," say "Blend dry ingredients."

Instead of saying, "Combine potatoes, salt, celery, eggs, onions, mayonnaise, and salad dressing," say "Combine all ingredients."

Directions are simply written and easy to understand.—Terms such as "cook" or "fry" are used rather than "saute."

When butter, margarine, lard, shortening, fat, oil are specified as an ingredient, the term "fat" or "oil" is used in the directions.

Examples: Brown beef in fat.

Add oil, a few drops at a time, to the egg mixture.

Descriptive terms are omitted in the directions unless needed for clarity.

Examples: *Ingredients*

Directions

Lemon-flavored gelatin	Dissolve gelatin in hot water.
Onions, chopped	Add onions.
Warm water	Combine pudding mix with water.

An exception is confectioner's sugar when other sugar is used in the recipe.

Example: Confectioner's sugar Add confectioner's sugar.

Detailed directions that are given on another card (8) are not repeated; instead, reference is made to the number of that card.

Examples: Directions for cooking macaroni, "Cook macaroni (card B-4)."

Directions for thawing chicken, "Thaw frozen chicken (card D-7)."

To save space in printing, weights, measures, size of scoop (No.), and degrees Fahrenheit (°F) are abbreviated in the directions.

Wording of a standard procedure is kept uniform from recipe to recipe. The following are examples of wording adopted for some standard procedures:

- | | |
|-------------------------------------|--|
| Browning ground beef | Brown meat; use fat if beef is lean. Drain off excess fat; season. |
| Using frozen fish fillets | Thaw frozen fillets (card D-11). Divide into 100 portions, about 3 oz each. Place in a |
| Making white sauce | Melt fat; blend in flour and salt. Stir into milk. Cook and stir constantly until thickened. |

Panning.—When pans of a certain size are needed for satisfactory baking results or as a guide in portioning, the dimensions, the number of pans required, and the volume or weight of food per pan are included in the directions. Pan size is not given for foods portioned before baking such as meat patties, rolls, biscuits, and cookies. Commonly used pan sizes are given on card A-6 in the recipe file (8).

Example: Pour into 4 greased baking pans (about 12 by 20 by 2 inches), about 5 lb or 2-1/4 qt per pan.

Baking.—Directions for baking include oven temperatures in degrees Fahrenheit, with the descriptive term describing the temperature in parentheses following the temperature. The following terms are used to describe oven temperatures:

- 250° F and 275° F (very slow oven)
- 300° F and 325° F (slow oven)
- 350° F and 375° F (moderate oven)
- 400° F and 425° F (hot oven)
- 450° F and 475° F (very hot oven)
- 500° F and 525° F (extremely hot oven)

Baking directions are written as follows:

Bake about 30 minutes at 350° F (moderate oven).

or

Bake at 350° F (moderate oven) about 1 hour or until brown.

Portioning.—Information on portioning or serving is included in the directions when appropriate. Commonly used scoop and ladle sizes are given on card A-6 in the recipe file (8). The following are examples of directions for portioning or serving:

Portion with No. 24 scoop (2-2/3 Tbsp).

Portion with 1-cup ladle. Serve over baked potato, rice, or toast.

Serve with chicken or giblet gravy, if desired.

Cut and serve on salad greens.

Yield.—Information on total yield is given for dry mixes, sauces and gravies, and toppings. The notation on yield appears after the last step in the directions. It is written as follows:

Cornbread Mix YIELD: 9 lb 10 oz (2 gal).

Raisin Sauce YIELD: 3-1/4 qt.

Meringue YIELD: Meringue for fifteen 9-inch pies.

Portion Size and Contribution to Type A Lunch Requirements

Portion size.—Information on portion size is given below the recipe. The portion should be a suitable size for boys and girls, 9 to 12 years old. (See the Type A lunch pattern on page 2.) Abbreviations are not used when indicating portion size.

Examples of PORTION for recipes contributing to protein-rich foods, vegetables and fruits, and bread requirements of the Type A lunch are:

PORTION: 1 patty—provides. . . .

PORTION: 1 egg—provides. . . .

PORTION: 1 chicken thigh—provides. . . .

PORTION: 1 sandwich—provides. . . .

PORTION: 3/4 cup plus potatoes—provides. . . .

PORTION: 1/3 cup—provides. . . .

PORTION: 1 portion plus sauce—provides. . . .

PORTION: 1 potato—provides. . . .

PORTION: 1/7 pie—provides. . . .

PORTION: 1 piece, 2 by 3-3/4 inches—provides. . . .

PORTION: 1 muffin—provides. . . .

Examples of PORTION for recipes without a specified contribution to Type A lunch requirements are:

PORTION: 2 tablespoons.

PORTION: About 3 tablespoons.

PORTION: 1/4 cup.

PORTION: 1 piece, 2-1/2 by 3-1/4 inches.

PORTION: 2 cookies.

Portion size is not given for recipes such as those for salad dressings, white sauce, meringue, and frostings. The yield for these recipes is given in the directions column.

Portion size is given for variations of a recipe only when the serving size is different from the basic recipe. For example, the last sentence in a variation may be "One portion (2/3 cup) provides 2 ounces cooked meat and 1/4 cup vegetable and fruit," or "One portion provides the equivalent of 1 ounce protein-rich food." Otherwise, it is "Portion as in basic recipe."

Contribution to Type A lunch requirements.—Contribution to the Type A lunch is determined by following procedures outlined in Part 2. Requirements for each component of the Type A lunch are also explained in Part 2.

A recipe may provide protein-rich food, vegetable, fruit, bread, or a combination of these. The following examples are ways in which the contribution of a portion is stated on a recipe:

- provides 2 ounces cooked meat.
- provides 2 ounces cooked fish.
- provides 1 ounce cheese.
- provides 2 tablespoons peanut butter.
- provides the equivalent of 2 ounces protein-rich food.
- provides 1/2 cup vegetable.
- provides 1/4 cup fruit.
- provides 1/3 cup vegetable and fruit.
- provides a serving of bread.
- provides 2 ounces cooked meat, 1/4 cup vegetable, and a serving of bread.

Contribution of variations of a recipe to the Type A lunch is specified only when it is different from the basic recipe. The contribution is written as follows:

Basic recipe

"1 cup—provides 2 ounces cooked meat and 1/2 cup vegetable."

Variation

"One portion provides 2 ounces cooked meat, 1/2 cup vegetable, and a serving of bread."

Cost Per Portion

Space is provided for recording cost per serving of the food, or cost of a specified quantity, or cost of the total quantity for the recipe. For example: Cost per portion _____; Cost per quart _____; Cost per gallon _____; Total cost _____.

Variations

A variation is added to the recipe when the basic recipe is altered in one of the following ways: (1) One or more ingredients are replaced; or (2) one or more ingredients are added to the basic recipe; or (3) one or more ingredients are deleted from the basic recipe; or (4) changes are made in method of combining ingredients; or (5) changes are made in method of cooking. Contribution to the Type A lunch may be changed by the ingredient changes.

Variations are listed alphabetically with the exception of those variations using dried whole eggs in place of shell eggs which are always listed first. Each variation of the recipe is indicated by a small letter (a, b, c, d, etc.). An asterisk (or star) before the variation letter signifies that an ingredient in the variation is listed in the marketing guide on the back of the card.

Variations are written so that only replacements or changes are indicated. Information given in the basic recipe is not repeated unless it is needed for clarity. The portion size and contribution to the Type A lunch are not repeated unless they are different from those of the basic recipe. (For information on portion size and contribution, see page 12.) Both weight and volume measure of the alternate or added ingredient are given, where feasible.

Examples that illustrate types of variations are as follows:

Ingredient replaced

C-5a. APPLESAUCE CAKE (using dried whole eggs): Reconstitute 5 oz (1-2/3 cups, sifted) dried whole eggs with 1-2/3 cups water and use in place of shell eggs. Portion as in basic recipe.

Ingredient added

E-15d. TURKEY POTATO SALAD: Add 8 lb 8 oz (1 gal 1-3/4 qt) diced cooked potatoes and use an additional 3 cups of salad dressing. If desired, add 6 oz (1 cup) chopped onion. Portion with No. 6 scoop (2/3 cup). One portion (2/3 cup) provides the equivalent of 2 ounces protein-rich food and 1/3 cup vegetable.

Ingredient deleted

D-28a. VEGETARIAN LIMA BEAN CASSEROLE: Omit bacon and use 1 lb 8 oz (3 cups) butter or margarine in place of bacon drippings. Portion as in basic recipe.

Change in method of combining ingredients

D-29a. BRAISED LIVER: Use the proportion of liver, flour, fat, and onions listed above. Mix 1/2 oz (1 Tbsp) salt with the flour and follow directions in step 1. Place liver in 4 baking pans (about 12 by 20 by 2 inches) and sprinkle onions over top of liver. Pour 1 qt hot water over liver in each pan. Bake uncovered 45 minutes at 350° F (moderate oven). Serve over mashed potatoes or noodles. One portion (about 1/3 cup) provides 2 ounces cooked meat.

Change in method of cooking

B-10a. BROWN AND SERVE ROLLS: Follow directions through step 7. Bake rolls 30 minutes at 250° F (slow oven). Rolls may then be held several hours at room temperature or refrigerated until next day. To brown, bake about 7 minutes at 425° F (hot oven). Portion as in basic recipe.

Change in contribution toward Type A lunch

I-2b. CHICKEN-TOMATO-RICE SOUP: Use 17 lb (2 gal) tomato juice and 3 gal broth in place of 5 gal broth. One cup provides 1 ounce cooked meat and 1/4 cup vegetable.

WRITING MENU SUGGESTIONS

This section contains information needed to write the "Menu Suggestions" for main dish, salad, sandwich, and soup recipes that make a contribution to the Type A requirement for protein-rich food. Menus are planned around the basic recipe or a variation of the recipe. The sample recipe card (page 4) gives examples of "Menu Suggestions."

Format

Two menus for Type A lunches are given on the back of the recipe card under the heading "Menu Suggestions" following the recipe or any variations of the recipe.

The featured protein-rich food, printed in italics or underlined, is always listed first in the menus. The other menu items are listed below the protein-rich food items.

The dessert is listed *before* the bread, butter or margarine, and milk if it makes a contribution to the protein-rich food or vegetable and fruit requirement of the Type A lunch as follows:

Protein-rich food	<i>Pork Chop Suey</i> /Buttered Rice
Vegetable and/or fruit	Sliced Tomatoes
Dessert	Apricot Shortcake/Whipped Topping
Bread Butter or Margarine Milk	Bread Butter or Margarine Milk

The dessert is listed *after* the bread, butter or margarine, and milk in the menu if it makes no contribution to the Type A lunch requirements:

Protein-rich food	<i>Pork Chop Suey</i> /Chinese Noodles
Vegetable and/or fruit	Cabbage-Pineapple Salad Chilled Plums
Bread Butter or Margarine Milk	Roll Butter or Margarine Milk
Dessert.	Coconut Cookies

The singular form, Muffin, Brownie, Melon Wedge, is used if a single unit is a portion; the plural form, Dumplings, Orange Slices, is used if more than one unit is a portion.

Menus should be written to clearly identify all components of the lunch. If the main dish contains less than 2 ounces of protein-rich food, some other menu item that is obviously a protein-rich food is specified. For example, the macaroni and cheese supplies 1 ounce of cheese and the deviled egg provides 1/2 egg to fulfill the protein-rich food requirement in the following menu:

<i>Macaroni and Cheese</i>
Buttered Turnips/Pimiento
Sliced Tomatoes/Deviled Egg
French Bread Butter or Margarine Milk
Apricot-Raisin Fruit Bar

Descriptive terms are used to describe menu items when they add appeal to the item such as Parsley Buttered Potatoes and Chilled Peach Slices or when needed to specify method of preparation such as Sliced Tomatoes.

Foods which are sources of vitamin C and vitamin A should be identified if possible; for example, Molded Citrus Salad instead of Molded Salad and Cabbage-Carrot Slaw instead of Cole Slaw.

The menu should indicate how the butter or margarine component will be included —

As a spread on bread:

Oven-Fried Chicken
Hot Potato Salad Stewed Tomatoes
Roll Butter or Margarine Milk
Peach Cobbler

As a seasoning for vegetables or in cooking:

Pizza
Buttered Mixed Vegetables
Orange Wedges
Milk Cookies

Developing the Menu

Menus should be developed around the basic recipe or variation using the Type A lunch pattern (page 2).

The requirement for protein-rich food may be met by the main dish or by the main dish and one other menu item. An extra source of protein such as meat, cheese, or peanut butter is often used in the lunch to increase the nutritive value when protein-rich foods such as eggs, luncheon-type meat, dry beans, or dry peas are served as the main dish. In the following menu, luncheon meat was used to supplement the egg in the egg salad (a small amount of grated cheese was used as a garnish):

Egg Salad/Luncheon Meat on Lettuce
Baked Potato/Grated Cheese
Buttered Peas/Pimiento
Glazed Raisin Roll Butter or Margarine Milk

Two or more vegetables and fruits are needed in a lunch to meet the Type A lunch requirements. These may be served as a hot or cold vegetable, a salad, or a dessert. For example, in the above menu, the requirement was met with the baked potato and buttered peas. On the sample card, part of the vegetable requirement was met by the 1/2 cup vegetable in the beef stew.

A food rich in vitamin C should be included in each of the menus. One of the menus should include a food rich in vitamin A. Several foods containing iron should be included in each menu.

“Menu Suggestions” should show use of good menu planning techniques in addition to compliance with the Type A lunch requirements. Menus should include a variety of foods. Different foods should be used with the protein-rich food in the two menus. Menus should show contrast in texture, flavor, size, shape, and color of the foods included.

Additional information on planning the "Menu Suggestions" may be found in A Menu Planning Guide for Type A School Lunches (5). Included in that publication are lists of foods rich in vitamin C and vitamin A and those that provide iron.

WRITING A MARKETING GUIDE

This section contains information needed to write the "Marketing Guide For Selected Items." Marketing information is given for ingredients that have a preparation loss or gain or are purchased in cans, packages, or loaves. These selected ingredients listed in the ingredient column are immediately preceded by an asterisk (or star) which refers to a footnote, "*See Marketing Guide on back of card," or "*See Marketing Guide." The sample recipe card (page 4) gives an example of a marketing guide.

Format

The Marketing Guide, when applicable, is the last entry on the back of the recipe card.

In the first column of the Marketing Guide, "Food as purchased" is listed using the same terminology as in the first column of the Food Buying Guide (7). Fresh foods are listed without the word "fresh". Other forms include description of the form, such as "canned" or "frozen". In the second column, abbreviations for cylinder (Cyl), and package (pkg.) are used in the Marketing Guide, in addition to those listed on page 9.

Examples:

<i>Ingredients (Front of card)</i>	<i>Food as Purchased (Back of card)</i>
*Potatoes, pared	Potatoes
*Onions, chopped	Mature onions
*Canned apricots, drained	Canned apricots
*Cooked cured ham, diced	Cured ham, with bone
*Cooked rice	Rice
*Cooked turkey	Ready-to-cook turkey (yield excludes neck, giblets, and skin.)

If the recipe has one or more variations in which ingredients are added, deleted, or replaced, a marketing guide is set up as follows:

MARKETING GUIDE FOR SELECTED ITEMS

Food as purchased	For 100-portion recipe	For ___ portion recipe
Basic recipe		
Sweetpotatoes	31 lb 2 oz . . . . .	. . . . .
Variation a		
Carrots, without tops . .	27 lb . . . . .	. . . . .
Variation b		
Turnips	32 lb 14 oz . . . . .	. . . . .

Types of Food Included

Marketing information is included in the Marketing Guide for the quantity of an ingredient as purchased when it is different from the quantity listed in the recipe because the food (1) has a preparation loss due to paring, trimming, or cooking; (2) has a preparation gain due to cooking dried or dehydrated foods such as rice or beans; (3) is purchased in cans, packages, or loaves. (The size of can, package, or loaf should be the one most often purchased by the school.)

Developing a Marketing Guide

The basic tool used in developing a marketing guide is the Food Buying Guide (7). In addition to number of servings per purchase unit and the number of purchase units needed for 100 servings, the Food Buying Guide gives helpful information on using and interpreting the data. The last column of the Food Buying Guide is used to determine the quantity of food required for a specified amount of ready-to-cook or cooked foods listed in a recipe. Directions for making the calculations may be found on page 4 of the Food Buying Guide.

Table 1 shows the procedure to follow in calculating amounts of food to buy as given in the Marketing Guide for 100 portions of Beef Stew (see sample recipe card, page 4).

Table 2 shows the procedure to follow in calculating amounts of other selected foods for inclusion in a Marketing Guide from five different recipes.

TABLE 1.—Calculation of "Marketing Guide for Selected Items" for Beef Stew recipe.

Card No. (1)	Name of recipe or variation (2)	Ingredient and descriptive terms (3)	Quantity of ingredient given in recipe (weight or measure) (4)	Quantity of a prepared food from a purchase unit in PA-270		Calculated quantity to purchase	
				Purchase unit (5)	Quantity (6)	Unrounded (7)	Rounded (8)
D-17	Beef Stew	Boneless stew beef, cubed.	19 lb 4 oz (19.25 lb)	-----	-----	-----	-----
		Onions, quartered.	1 lb 4 oz (1.25 lb)	Pound	0.89 lb	1.40 lb	1 lb 6-1/2 oz
		Potatoes, diced.	9 lb (9.00 lb)	Pound	.81 lb	11.11 lb	11 lb 2 oz
		Carrots, diced.	7 lb (7.00 lb)	Pound	.82 lb	8.54 lb	8 lb 10 oz
		Celery, cut in 1-inch pieces.	4 lb (4.00 lb)	Pound	.75 lb	5.33 lb	5 lb 6 oz

Calculations for columns 7
and 8.

1) $1.25 \div 0.89 = 1.40$
2) $1.40 = 1 \text{ lb } 6\text{-}1/2 \text{ oz}^1$ 2

1) $9.00 \div 0.81 = 11.11$
2) $11.11 = 11 \text{ lb } 2 \text{ oz}^1$ 2

1) $7.00 \div 0.82 = 8.54$
2) $8.54 = 8 \text{ lb } 8\text{-}3/4 \text{ oz}^1$
3) $8 \text{ lb } 8\text{-}3/4 \text{ oz rounds to } 8 \text{ lb } 10 \text{ oz}^2$

1) $4.00 \div 0.75 = 5.33$
2) $5.33 = 5 \text{ lb } 5\text{-}1/4 \text{ oz}^1$
3) $5 \text{ lb } 5\text{-}1/4 \text{ oz rounds to } 5 \text{ lb } 6 \text{ oz}^2$

¹ See appendix table 4, Decimal equivalents in parts of one pound, one cup, or one gallon.

² See appendix table 6, Rules for rounding amounts to purchase for a marketing guide.

TABLE 2.—Calculation of "Marketing Guide for Selected Items" for five recipes.

Card No. (1)	Name of recipe or variation (2)	Ingredient and descriptive terms (3)	Quantity of ingredient given in recipe (weight or measure) (4)	Quantity of a prepared food from a purchase unit in PA-270		Calculated quantity to purchase	
				Purchase unit (5)	Quantity (6)	Unrounded (7)	Rounded (8)
D-24	Creamed Turkey.	Cooked turkey, diced.	12 lb 8 oz (12.50 lb)	Pound	0.44 lb	28.41 lb	28 lb 8 oz
D-33	Meat- Potato- burgers.	Tomato juice	11 lb 12 oz or 1 gal 1-1/2 qt (22 cups)	No. 3 Cyl	5-3/4 cups (5.75)	3.83 No. 3 Cyl	4 No. 3 Cyl
D-43	Savory Pork	Frozen green lima beans.	2 lb 2 oz (2.12 lb)	2-1/2 lb pkg.	2.50 lb	0.85 pkg.	1 pkg. (2-1/2 lb each)
G-5	Grilled Cheese Sandwich.	Sandwich bread.	200 slices	2-pound loaves (3/8 inch- thick slice)	36 slices per loaf.	5.56 2-pound loaves.	5-3/4 2-pound loaves.
J-14	Harvard Beets	Canned diced beets, drained.	19 lb or 3-1/4 gal (52 cups)	No. 10 can	12 cups	4.33 No. 10 cans	4-1/3 No. 10 cans

Calculations for columns 7
and 8

1) $12.50 \div 0.44 = 28.41$ lb

2) 28.41 lb = 28 lb 6-1/2 oz¹

3) 28 lb 6-1/2 oz rounds to
28 lb 8 oz²

1) $22.00 \div 5.75 = 3.83$ No. 3

Cyl

2) 3.83 rounds to 4 No. 3 Cyl²

1) $2.12 \div 2.50 = 0.85$ pkg.

2) 0.85 rounds to 1 2-1/2 lb
pkg.²

1) $200 \div 36 = 5.56$ loaves

2) 5.56 loaves rounds to 5-3/4
2-pound loaves.²

1) $52 \div 12 = 4.33$ No. 10 cans

2) 4.33 No. 10 cans rounds to
4-1/3 No. 10 cans.²

¹ See appendix table 4, Decimal equivalents in parts of one pound, one cup, or one gallon.

² See appendix table 6, Rules for rounding amounts to purchase for a marketing guide.

Part 2.--Evaluating School Lunch Recipes

Part 2 of this guide consists of two sections. The first section, Calculation of the Amount of Contribution to the Type A Lunch, presents instructions on how to calculate the number of servings of protein-rich foods, vegetables and fruits, and bread provided in the recipe. The second section, Evaluation of Calculated Contribution to the Type A Lunch, provides information to help evaluate and interpret the contribution these foods make to the Type A lunch requirements.

CALCULATION OF THE AMOUNT OF CONTRIBUTION TO THE TYPE A LUNCH

This section contains the instructions needed to calculate the contribution that ingredients in a recipe make to Type A lunch requirements.

Calculations are made to determine the amount of contribution to the Type A lunch by multiplying the quantity of foods to be purchased for the recipe by the number of servings of a specified size per purchase unit of food. The amount of contribution is calculated by this method for all protein-rich foods, vegetables and fruits, and breads. When more than one protein-rich food or vegetable and fruit is in the recipe, the contribution is "the total" of the contribution for the individual components of the lunch.

The quantity of food to be purchased for those foods having no preparation loss is the same quantity as that listed in the weights and measures column in the recipe. The quantity of food to be purchased when the food has a preparation loss or gain or is purchased in a unit other than that specified in the recipe is in the "Marketing Guide for Selected Items" in the recipe file (8).

The number of servings per purchase unit is found in the Food Buying Guide (7). The number of servings is different for different forms of the same food; therefore, particular attention must be paid to the description of the food when selecting the number of servings to be used in the calculations. The description of the form of a food should be *most nearly like* that of this food after the preparation of the recipe is complete. The following items illustrate the descriptions of foods in the Food Buying Guide that are most nearly like the forms of the ingredients in the Beef Stew (page 4) when it is served:

Description of foods from selected columns in the Food Buying Guide (7)			
Recipe ingredient	Food as purchased	Servings per purchase unit	Serving size or portion
Boneless stew beef, cubed	Beef, fresh Stewmeat (without bone)	5.25	2 ounces cooked meat.
Onions, quartered	Onions, mature Fresh	3.52	1/2 cup cooked pieces.
Potatoes, diced	Potatoes Fresh	4.61	1/2 cup cooked diced.
Carrots, diced	Carrots Fresh Without tops	4.26	1/2 cup cooked diced.
Celery, cut in 1-inch pieces	Celery Fresh	4.19	1/2 cup cooked cubed.

Table 3 provides examples of the entire process of developing a marketing guide and calculating the contribution to the Type A lunch requirements for Beef Stew and Pizza.

Use the worksheet in appendix C (page 43) for calculating the contribution of a recipe. Step by step instructions for completing the worksheet are provided. The calculations for the amount of food to purchase (described in table 1, page 20) are included since this information is needed to calculate the contribution of the recipe.

EVALUATION OF CALCULATED CONTRIBUTION TO THE TYPE A LUNCH

This section contains information needed to evaluate and interpret the calculated contribution that recipe ingredients make to Type A lunch requirements. Requirements for each component of the lunch are given followed by criteria for evaluating recipes. Total calculated contribution of the protein-rich foods, the vegetables and fruits, or bread should be at least 100 units of the size specified for a 100-portion recipe.

Protein-Rich Food

The requirement for protein-rich food given in the Type A lunch pattern (page 2) is 2 ounces (edible portion as served) of lean meat, poultry, or fish; or 2 ounces of cheese; or 1 egg; or 1/2 cup of cooked dry beans or dry peas; or 4 tablespoons of peanut butter; or an equivalent quantity of any combination of these.

A contribution for protein-rich food is stated on the recipe card when the total contribution is equal to one-half but not more than the total requirement for protein-rich foods described above.

The total calculated contribution of the protein-rich ingredients in some recipes may be slightly more than 100 portions because the yield of food may vary with preparation or serving losses. *A recipe should provide at least 100 servings but not more than 108 servings of a specified size of protein-rich food.*

A protein-rich food contribution must be the equivalent of 1 ounce, 1-1/4 ounces, 1-1/2 ounces, or 2 ounces per serving. Examples are 1 ounce cheese, 1/4 cup cooked dry beans, 2 tablespoons peanut butter, or 2 ounces cooked meat, poultry, or fish. (See page 13 for instructions on writing the contribution.)

Small amounts of protein-rich food ingredients used as garnishes, seasonings, or in breadings are not included in calculating the total contribution for a recipe. Such ingredients include chopped eggs sprinkled over a salad, grated cheese sprinkled over spaghetti or meat sauce, or eggs used in breading chops.

TABLE 3.—Calculation of the amount of contribution to the

Card No.	Name of recipe or variation	Ingredient and descriptive terms	Quantity of ingredient given in recipe (weight or measure)	Quantity of a prepared food from a purchase unit in PA-270		Calculated quantity to purchase	
				Purchase unit	Quantity	Unrounded	Rounded
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
D-17	Beef Stew	Boneless stew beef, cubed.	19 lb 4 oz (19.25)	-----	-----	-----	-----
		Onions, quartered	1 lb 4 oz (1.25 lb)	Pound	0.89 lb	1.40 lb	1 lb 6-1/2 oz
		Potatoes, diced	9 lb (9.00 lb)	Pound	.81 lb	11.11 lb	11 lb 2 oz
		Carrots, diced	7 lb (7.00 lb)	Pound	.82 lb	8.54 lb	8 lb 10 oz
		Celery, cut in 1-inch pieces.	4 lb (4.00 lb)	Pound	.75 lb	5.33 lb	5 lb 6 oz
		Totals	-----	-----	-----	-----	-----
D-38	Pizza	Ground pork or Ground beef	11 lb (11.00 lb) or 8 lb 12 oz (8.75 lb)	-----	-----	-----	-----
		Tomato paste	4 lb 12 oz or 2 qt (8 cups)	No. 10 can	12 cups	0.67 No. 10 can	2/3 No. 10 can
		Cheese, shredded	6 lb 4 oz (6.25 lb)	-----	-----	-----	-----
		Bread	1 recipe (100 portions)	-----	-----	-----	-----
		Totals	-----	-----	-----	-----	-----

Type A lunch requirements illustrated by Beef Stew and Pizza.

Servings per purchase unit in PA-270 (9)	Amount of contribution					
	Protein-Rich Food		Vegetable and Fruit		Bread	
	Size of serving (10)	Calculated number of servings (11)	Size of serving (12)	Calculated number of servings (13)	Size of serving (14)	Calculated number of servings (15)
5.25	2 oz	101.06	-----	-----	-----	-----
3.52	-----	-----	1/2 cup	4.96	-----	-----
4.61	-----	-----	1/2 cup	51.26	-----	-----
4.26	-----	-----	1/2 cup	36.72	-----	-----
4.19	-----	-----	1/2 cup	22.54	-----	-----
-----	2 oz	101.06	1/2 cup	115.48	-----	-----

PORTION: 1 cup—provides 2 ounces cooked meat and 1/2 cup vegetable.

4.55	2 oz	50.05	-----	-----	-----	-----
or		or				
5.76	2 oz	50.40	-----	-----	-----	-----
12 cups	-----	-----	1/4 cup	32	-----	-----
8.00	2 oz	50.00	-----	-----	-----	-----
-----	-----	-----	-----	-----	1 portion	100
-----	2 oz	100.05 or 100.40	-----	-----	1 portion	100

PORTION: 1 piece, 3-1/4 by 5 inches—provides the equivalent of 2 ounces of protein-rich food and a serving of bread.

Vegetables and Fruits

The requirement for vegetables and fruits given in the Type A lunch pattern (page 2) is a 3/4-cup serving consisting of 2 or more vegetables or fruits or both, in raw or cooked form. A serving (1/4 cup or more) or full-strength vegetable or fruit juice may be counted to meet not more than 1/4 cup of this requirement.

A contribution for vegetables and fruits is stated on the recipe card when the total contribution is 1/4 cup but not more than 1/2 cup per serving. (Vegetables and fruits in quantities of less than 1/4-cup servings are considered to be seasonings or flavorings.) The contribution of vegetables and fruits in a recipe is given as 1/4 cup, 1/3 cup, or 1/2 cup.

The total calculated contribution of vegetables and fruits in a recipe may not be exactly 1/4, 1/3, or 1/2 cup per serving. Allowances were made in the standardization of recipes for Quantity Recipes for Type A School Lunches (8) for contributions totaling more than 100 due to loss of volume during preparation of the recipe. *A recipe should provide at least 100 servings but not more than 120 servings of 1/4- or 1/3-cup size or 116 servings of 1/2-cup size of vegetables and fruits.*

Vegetables and fruits used in small quantities for flavorings or listed in the recipe as an optional ingredient (if desired) should *not* be included in calculating the total contribution of vegetables and fruits. These could be flavorings such as lemon juice used in vegetables or optional ingredients such as chopped olives used in salads.

When tomato paste and tomato puree are used as an ingredient in recipes, their contribution to the vegetable and fruit requirement should be in terms of the quantity of concentrate used. A recipe calling for 2 quarts tomato paste or tomato puree would provide 32 one-fourth cup servings of the vegetable/fruit requirement.

Bread

The requirement for bread given in the Type A lunch pattern (page 2) is 1 slice of whole-grain or enriched bread; or a serving of other bread such as cornbread, biscuits, rolls, muffins, made of whole-grain or enriched meal or flour.

Each serving of bread made from the recipes in the recipe file (8) contains about 2/3 ounce or more of whole-grain or enriched flour or meal. The maximum amount of flour or meal is that necessary for a serving of reasonable size.

Biscuits or other breads that are a part of a main dish or other protein-rich food may be counted as contributing to the Type A lunch requirement for bread. To be counted, the portion should provide the equivalent of 1 serving of bread. Toppings for desserts, such as cobblers, are not counted as making a contribution to the bread requirement.

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Appendix A.--Decimal Equivalents and Rules For Rounding

Information is given in table 4 for converting ounces, tablespoons, and cups to decimal equivalents of one pound, one cup, or one gallon, respectively.

Rules are given in tables 5 and 6 for converting weights and volume measures of ingredients and amounts to purchase into quantities that are easy to read and easy to measure.

TABLE 4.—Decimal equivalents in parts of one pound, one cup, or one gallon for different units.

Number of units (ounces, table- spoons, or cups) ¹	+0 unit	+1/4 unit	+1/3 unit	+1/2 unit	+2/3 unit	+3/4 unit
Decimal equivalent of one pound, one cup, or one gallon						
0	---	0.016	0.021	0.031	0.042	0.047
1	0.062	.078	.083	.094	.104	.109
2	.125	.141	.146	.156	.167	.172
3	.188	.203	.208	.219	.229	.234
4	.250	.266	.271	.281	.292	.297
5	.312	.328	.333	.344	.354	.359
6	.375	.391	.396	.406	.417	.422
7	.438	.453	.458	.469	.479	.484
8	.500	.516	.521	.531	.542	.547
9	.562	.578	.583	.594	.604	.609
10	.625	.641	.646	.656	.667	.672
11	.688	.703	.708	.719	.729	.734
12	.750	.766	.771	.781	.792	.797
13	.812	.828	.833	.844	.854	.859
14	.875	.891	.896	.906	.917	.922
15	.938	.953	.958	.969	.979	.984

¹ The units are read at the side and top of the table. If the units are ounces, the decimal equivalents given in the body of the table are parts of one pound. If the units are tablespoons, the decimal equivalents are parts of one cup. If the units are cups, the decimal equivalents are parts of one gallon.

Examples:

To convert 10-1/2 ounces to the corresponding decimal equivalent of a pound, find 10 in the first column. Follow this line across to the column headed 1/2 which shows that 0.656 pound corresponds to 10-1/2 ounces.

To convert the decimal 0.531 pound to ounces, find 0.531 in the body of the table. Then, in the first column find the number which is on the same horizontal line, i.e., 8. Next, add the number from the heading of the column in which 0.531 was found, i.e., 1/2. Thus, 0.531 pound corresponds to 8-1/2 ounces.

TABLE 5.—Rules for rounding weights and volume measures of ingredients in recipes.

If the total amount of an ingredient is:	Adjust as follows ¹ :	Example:
WEIGHTS²:		
Less than 2 oz	Volume measure only unless weight is 1/4, 1/2, 3/4 oz, etc.	7/8 oz of salt would be shown only as 2 tablespoons.
From 2 oz to 10 oz	Nearest 1/4 oz	Round 2-1/3 oz to 2-1/4 oz.
More than 10 oz but less than 2 lb 8 oz.	Nearest 1/2 oz	Round 1 lb 5-3/8 to 1 lb 5-1/2 oz.
2 lb 8 oz to 5 lb	Nearest full oz	Round 3 lb 6-5/8 oz to 3 lb 7 oz.
More than 5 lb	Nearest 1/4 lb	Round 5 lb 9-1/2 oz to 5 lb 8 oz.
VOLUME MEASURES²:		
Less than 2 Tbsp	Nearest 1/4 tsp	Round 1-2/3 tsp to 1-3/4 tsp.
2 Tbsp to 1/2 cup	Nearest tsp	Round 3 Tbsp 1/3 tsp to 3 Tbsp.
More than 1/2 cup but less than 3/4 cup.	Nearest Tbsp	Round 1/2 cup 1-1/3 Tbsp to 1/2 cup 1 Tbsp.
More than 3/4 cup but less than 2 cups.	Nearest 2 Tbsp	Round 1 cup 2-3/4 Tbsp to 1 cup 2 Tbsp.
2 cups to 2 qt	Nearest 1/4 cup	Round 1 qt 3 cup 11-1/3 Tbsp to 1 qt 3-3/4 cups.
More than 2 qt but less than 4 qt.	Nearest 1/2 cup	Round 3 qt 9 Tbsp to 3 qt 1/2 cup.
1 gal to 2 gal	Nearest full cup	Round 1 gal 1 qt 3-1/4 cups to 1 gal 1-3/4 qt.
More than 2 gal	Nearest full qt	Round 2 gal 1 qt 1/2 cup to 2-1/4 gal.

¹ When a weight or volume measure is at the midpoint, round up.

² The weights and volume measures have been grouped so that the percentage error in rounding does not exceed the error normally introduced in handling food ingredients.

TABLE 6.—Rules for rounding amounts to purchase for a marketing guide.

If the total amount of an ingredient is:	Adjust as follows ¹ :	Example:
WEIGHTS²:		
Between 2 oz to 10 oz	Up to next 1/4 oz	Round 6-1/8 oz to 6-1/4 oz.
More than 10 oz but less than 2 lb 8 oz.	Up to next 1/2 oz	Round 1 lb 3-3/4 oz to 1 lb 4 oz.
Between 2 lb 8 oz and 5 lb	Up to next 1 oz	Round 4 lb 7-1/4 oz to 4 lb 8 oz.
More than 5 lb	Up to next even 2 oz. Use only amounts of 2 oz, 4 oz, 6 oz, 8 oz, 10 oz, 12 oz, 14 oz, or full pounds.	Round 8 lb 8-3/4 oz to 8 lb 10 oz.
CANS, PACKAGES, LOAVES:		
No. 10 can	Up to next 1/8, 1/4, 1/3, 1/2, 2/3, 3/4, or 1 can.	Round 0.60 can to 2/3 can.
No. 3 Cyl	Up to next 1/4, 1/3, 1/2, 2/3, 3/4, or 1 can.	Round 0.40 can to 1/2 can.
Package	Up to next 1/4, 1/2, 3/4, or 1 pkg.	Round 0.80 pkg. to 1 pkg.
Loaf of bread	Up to next 1/4, 1/2, 3/4, or 1 loaf.	Round 0.57 loaf to 3/4 loaf.

¹ When a weight or volume measure is at the midpoint, round up.

² The weights and volume measures have been grouped so that the percentage error in rounding does not exceed the error normally introduced in handling food ingredients.

Appendix B.--Weights of Food Materials in One-Cup Measures

The weights of one-cup measures for food ingredients commonly used in recipes for Type A lunches are included in table 7.

In quantity recipes the amounts of ingredients may be given in either weight or volume measures or both weight and volume. The recipes included in the recipe file (8) were prepared in the laboratory using weight of ingredients (except for liquids and spices which are usually measured as volumes); the volume equivalents were calculated later.

To provide accurate information for converting the weights to volumes, data on the weights of foods in one-cup, one-quart, and one-gallon measures were collected by the Human Nutrition Research Division, Agricultural Research Service (3). These weights and other data provided by the Fish and Wildlife Service, U.S. Department of Interior, were used in calculating the average weight of one-cup measures given in table 7.

The foods are listed in alphabetical order to facilitate use of the table. In addition to the name of the food, the form of the food as purchased is given in the first column of the table. The term *fresh* is used to describe foods which are purchased without being processed. *Canned, frozen, dry, dehydrated, and evaporated* are examples of terms used to describe processed forms of the foods. Other terms such as *cut, halves, slices, all-purpose, and Hubbard* are used to describe the form of food when purchased or the kind and variety of food purchased.

The form after preparation of the food is described in the second column. Several different forms may be listed for one food.

The average weight of one cup of the food is given in *ounces* in the third column as it is expressed in the weights column on the recipe. Decimal parts of a *pound* are given in the fourth column because the weight in decimals may be easier to use in some calculations than the weight in ounces.

The following example illustrates the use of the data in table 7. The Beef Stew recipe (page 4) requires 9 pounds of raw diced potatoes. In table 7 (page 39) the weight of one cup of raw diced potatoes is 5-3/4 ounces or 0.359 pounds. To calculate the volume, 9 pounds (9.00) is divided by 0.359. Thus, the volume of 9 pounds of raw diced potatoes is 25.07 cups. The 25 cups may be converted to 1 gallon 2-1/4 quarts by using the equivalent common food measures on card A-2 of the recipe file (8). Fractions of quarts and gallons are written according to the instructions on page 9 in Part 1. When necessary, the volume measure is rounded according to rules for rounding recipe ingredients, table 5.

Example: 25.07 cups - 16 cups (1 gallon) = 9.07 cups.

9 cups (nearest whole number) ÷ 4 cups (1 quart) = 2.25 or 2-1/4 quarts.

Therefore, 9 pounds of raw diced potatoes equals 1 gal 2-1/4 qt.

Additional weights may be needed in writing school lunch recipes. These can be obtained from data collected in a laboratory or test kitchen during quantity recipe development and standardization or from other references, such as those given on page 27.

TABLE 7.—Approximate weights of food materials in one-cup measures.

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Apples			
Fresh	Raw, chopped, diced, or sliced	4-1/4	0.266
Canned slices	Drained	8	.500
Dehydrated slices			
Regular dried	Uncooked	3-3/4	.234
Low moisture	Uncooked	2	.125
Applesauce			
Canned .....	.....	9	.562
Dehydrated			
Low moisture	Uncooked	3-1/4	.203
Apricots			
Canned halves	Drained	8	.500
Dehydrated			
Regular dried halves	Uncooked	5	.312
Low moisture slices	Uncooked	4	.250
Bacon, cured	Raw, diced	6-1/2	.406
Baking powder .....	.....	6	.375
Baking soda .....	.....	6	.375
Bananas			
Fresh	Raw		
	Mashed	8-1/4	.516
	Sliced	5	.312
Barley .....	.....	7-1/4	.453
Beans			
Green or wax			
Fresh	Uncooked 1-1/2 to 2-inch pieces	3-3/4	.234
	Cooked, drained, 1-1/2 to 2-inch pieces	5	.312
Canned, cut	Drained	5	.312
Frozen, cut	Uncooked	5-3/4	.359
	Cooked, drained	5	.312
Kidney			
Canned	Drained	6-3/4	.422
Dry	Cooked, drained	6-3/4	.422

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Beans—Continued			
Lima, shelled			
Fresh	Uncooked	5-1/2	0.344
	Cooked, drained	6	.375
Canned, green	Drained	6	.375
Frozen, Fordhook	Uncooked	5-3/4	.359
Dry			
Baby	Uncooked	7	.438
Large	Uncooked	6-1/4	.391
Pea (navy)			
Dry	Uncooked	7	.438
All types			
Dry	Uncooked	7	.438
	Cooked, drained	6-3/4	.422
Bean sprouts			
Canned	Drained	5	.312
Beef			
Fresh	Cooked, diced or chopped	5	.312
Dried . . . . .	. . . . .	4	.250
Beets			
Fresh	Cooked, drained, diced or sliced	6-1/2	.406
Canned, diced, or sliced	Drained	5-3/4	.359
Blueberries			
Fresh	Raw	5	.312
Canned	Drained	6-3/4	.422
Frozen, sweetened	Drained	6-1/4	.391
Bread crumbs, dry . . . . .	. . . . .	3-3/4	.234
Bread crumbs or cubes, soft . . . . .	. . . . .	1-1/2	.094
Bread cubes, dry . . . . .	. . . . .	1-1/2	.094
Bulgur, cracked wheat	Uncooked	6	.375
Butter . . . . .	. . . . .	8	.500

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Buttermilk . . . . .	. . . . .	9	0.562
Butter oil . . . . .	. . . . .	7-1/4	.453
Cabbage			
Fresh	Raw		
	Chopped	3-1/2	.219
	Shredded	2-1/2	.156
Carrots			
Fresh	Uncooked		
	Shredded	4	.250
	Diced or sliced	5	.312
	Cooked, diced or sliced, drained	5-1/2	.344
Canned, diced or sliced	Drained	5-1/2	.344
Catsup . . . . .	. . . . .	9-3/4	.609
Cauliflower			
Fresh	Raw, flowerets	3-3/4	.234
Celery			
Fresh	Uncooked		
	Strips, 1-inch	4-1/2	.281
	Cubed, chopped, or diced	4-1/4	.266
	Cooked, sliced, drained	6	.375
Cereal, dry	Flakes	1-1/2	.094
	Crushed	2-1/2	.156
Cheese			
Cheddar	Diced	5	.312
	Grated or shredded	4	.250
Cottage . . . . .	. . . . .	8-1/4	.516
Cream . . . . .	. . . . .	8	.500
Parmesan, grated . . . . .	. . . . .	3-1/2	.219
Cherries, red, tart, pitted			
Canned	Drained	8	.500
Frozen, sweetened	Uncooked, drained	7-3/4	.484
Chicken			
Fresh	Cooked, chopped, diced, or ground	5	.312

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Chicken giblets Fresh	Cooked, chopped	5	0.312
Chili sauce . . . . .	. . . . .	9-1/2	.594
Chocolate chips . . . . .	. . . . .	6-3/4	.422
Cocoa . . . . .	. . . . .	3-1/2	.219
Coconut, shredded Canned or frozen . . . . .	. . . . .	2-1/4	.141
Corn, yellow Canned, whole kernel	Drained	6	.375
Cornbread	Crumbled	3-1/4	.203
Corn grits Fine . . . . .	. . . . .	5-3/4	.359
Coarse . . . . .	. . . . .	5-1/2	.344
Cornmeal . . . . .	. . . . .	5-1/4	.328
Corn sirup . . . . .	. . . . .	11-1/2	.719
Cornstarch . . . . .	. . . . .	4-1/2	.281
Cracker crumbs, graham . . . . .	. . . . .	3-1/2	.219
Cranberries Fresh	Uncooked, whole, chopped, or ground . . . Cooked into sauce, no sugar added	4 9-1/2	.250 .594
Cream Heavy . . . . .	. . . . .	8-1/2	.531
Sour . . . . .	. . . . .	8-3/4	.547
Cucumbers Fresh	Raw, pared, diced	5-3/4	.359
Dates Dehydrated, regular dried	Uncooked, chopped	6-1/2	.406
Eggs Fresh, shell Whites	1 white = 1.16 oz	8-1/2	.531
Yolks	1 yolk = 0.62 oz	8-1/2	.531
Whole	1 egg = 1.78 oz	8-1/2	.531
Dried, whole . . . . .	. . . . .	3	.188
Escarole Fresh	Shredded or pieces	2-1/2	.156

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Figs			
Canned	Drained	8	0.500
Flour			
White, all-purpose	Unsifted	4	.250
Whole wheat . . . . .	. . . . .	5	.312
Frankfurters	Sliced	4-3/4	.297
Fruit cocktail			
Canned	Drained	8	.500
Dehydrated, low moisture	Uncooked	3-3/4	.234
Gelatin			
Flavored . . . . .	. . . . .	6-1/2	.406
Unflavored . . . . .	. . . . .	5	.312
Grapefruit			
Fresh	Sections, drained	7-1/4	.453
Canned, sections	Drained	8-1/2	.531
Grapes			
Fresh	Whole or halves	6	.375
Ham, cured	Cooked, chopped, diced, or ground	5	.312
Heart			
Fresh	Cooked, chopped	4-1/2	.281
Honey . . . . .	. . . . .	12	.750
Lard . . . . .	. . . . .	8	.500
Lemon juice			
Canned . . . . .	. . . . .	8-3/4	.547
Lemons			
Fresh	Juice	8-3/4	.547
Lettuce			
Head			
Fresh	Chopped	2	.125
	Chunks	2-3/4	.172

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Lettuce—Continued			
Romaine			
Fresh	Shredded or pieces	1-3/4	0.109
Luncheon meat	Chopped or diced	5-1/4	.328
Macaroni, elbow.	Uncooked	4-1/4	.266
Mackerel			
Canned . . . . .	. . . . .	6-1/2	.406
Mangoes			
Fresh	Cubed or sliced	5-3/4	.359
Margarine . . . . .	. . . . .	8	.500
Milk			
Sweetened, condensed . . . . .	. . . . .	10-3/4	.672
Evaporated . . . . .	. . . . .	9	.562
Nonfat dry powder (USDA) . . . . .	. . . . .	5	.312
Instant nonfat dry crystals . . . . .	. . . . .	2-1/2	.156
Molasses . . . . .	. . . . .	11-1/2	.719
Mushrooms			
Fresh	Raw, chopped	2-3/4	.172
Canned	Pieces, drained	5-1/2	.344
Noodles	Uncooked	2-1/4	.141
	Cooked	6-1/2	.406
Nuts			
Peanuts	Chopped	5	.312
Walnuts or pecans	Chopped	4-1/2	.281
Oats, quick or regular	Uncooked	2-1/2	.156
Oil, salad or fat, melted . . . . .	. . . . .	8	.500
Okra			
Fresh	Cooked, drained, sliced	6	.375
Canned, cut or whole	Drained	6	.375

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Olives			
Green	Sliced	5-1/2	0.344
Ripe	Sliced	5	.312
Stuffed	Sliced	5-1/4	.328
Onions, mature			
Fresh	Uncooked		
	Chopped	6	.375
	Halves, quarters, or pieces	4-3/4	.297
	Sliced	3-3/4	.234
	Cooked, whole, drained	7-1/2	.469
Dehydrated, low moisture, slices	Dry	2-1/4	.141
	Reconstituted	5	.312
Orange juice			
Frozen concentrate	Reconstituted	8-3/4	.547
Oranges			
Fresh	Juice	8-3/4	.547
	Sections, drained, diced or sliced	7-1/2	.469
Parsley			
Fresh	Chopped	1	.062
Parsnips			
Fresh	Cooked, pieces	7-1/2	.469
Peaches			
Fresh	Raw, sliced	6-1/4	.391
Canned, slices	Drained	8-1/2	.531
Dehydrated			
Regular dried halves	Uncooked	5-1/2	.344
Low moisture, slices	Uncooked	4	.250
Peanut butter .....	.....	9-1/4	.578
Pears			
Fresh	Raw, pared, cubed	6	.375
Canned, halves	Drained	8	.500

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Peas			
Green, shelled			
Fresh	Uncooked	5	0.312
Canned	Drained	6	.375
Frozen	Uncooked	5-1/2	.344
	Cooked, drained	6	.375
Split			
Dry	Uncooked	7-1/2	.469
	Cooked	6-3/4	.422
Peppers, green			
Fresh	Raw, chopped, diced, or sliced	5-1/4	.328
Pickles			
Sweet	Chopped	6-1/2	.406
Relish	Undrained	8-1/2	.531
Pimientos			
Canned	Chopped	8-1/2	.531
Pineapple			
Fresh	Raw, cubed	4-3/4	.297
Canned, crushed	Drained or undrained	9-1/4	.578
Canned, tidbits or chunks	Drained	6-3/4	.422
Plums			
Fresh	Raw, sliced	6-1/2	.406
Pork			
Fresh	Cooked, diced or ground	5	.312
Potatoes			
Fresh	Uncooked		
	Diced or sliced	5-3/4	.359
	Chopped	7	.438
	Cooked		
	Diced	6	.375
	Sliced	5-1/2	.344
	Mashed	7-1/2	.469
Dehydrated, low moisture			
Flakes . . . . .	. . . . .	1-1/2	.094
Granules . . . . .	. . . . .	7	.438

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Prunes			
Dehydrated			
Regular dried, whole	Uncooked	6	0.375
	Cooked, chopped	9	.562
Low moisture, pitted whole .	Uncooked	4	.250
Pumpkin			
Fresh	Cooked, mashed	8-1/2	.531
Canned . . . . .	. . . . .	8-1/2	.531
Radishes			
Fresh	Raw, sliced	4	.250
Raisins			
Dehydrated, regular dried	Whole	5	.312
	Chopped	6	.375
	Ground	6-1/2	.406
Raspberries			
Fresh . . . . .	. . . . .	5	.312
Rice, white	Uncooked	7	.438
	Cooked	6	.375
Rutabagas			
Fresh	Uncooked, cubed	4-3/4	.297
Salmon			
Canned . . . . .	. . . . .	6	.375
Salt, table . . . . .	. . . . .	10-1/2	.656
Sardines			
Canned . . . . .	. . . . .	5-3/4	.359
Sauerkraut			
Canned	Drained	6-1/2	.406
Shortening, hydrogenated . . . . .	. . . . .	7	.438
Soy sauce . . . . .	. . . . .	9-1/4	.578
Spaghetti	Uncooked, broken	2-3/4	.172

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Spinach			
Fresh	Uncooked, pieces or chopped	2	0.125
	Cooked, whole, cut, or chopped, drained . .	6-3/4	.422
Squash			
Summer			
Fresh	Raw, sliced or diced	4-3/4	.297
Winter, Hubbard or Butternut			
Fresh	Cooked, mashed or packed	8-1/2	.531
Strawberries			
Fresh	Whole	5	.312
	Sliced	5-1/4	.328
Sugar			
Brown	Packed	7	.438
Confectioner's	Sifted	4-1/4	.266
Granulated . . . . .	. . . . .	7	.438
Sweetpotatoes			
Fresh	Cooked		
	Sliced	8	.500
	Mashed or packed.	9	.562
Dehydrated, low moisture flakes . . . . .	. . . . .	4	.250
Tapioca . . . . .	. . . . .	5-3/4	.359
Tomatoes			
Fresh	Raw, sliced or diced	5-3/4	.359
Canned . . . . .	. . . . .	8-1/2	.531
Tomato juice			
Canned . . . . .	. . . . .	8-1/2	.531
Tomato paste			
Canned . . . . .	. . . . .	9-1/2	.594
Tomato puree			
Canned . . . . .	. . . . .	9	.562
Tomato sauce			
Canned . . . . .	. . . . .	8-1/2	.531

TABLE 7.—Approximate weights of food materials in one-cup measures—Continued

Food as purchased	Preparation	Weight of 1 cup in —	
		Ounces	Decimal part of a pound
Tomato soup			
Canned, condensed		8-3/4	0.547
Tuna			
Canned		6	.375
Turkey			
Fresh	Cooked, chopped or diced	5	.312
Turnips			
Fresh	Uncooked, diced	4-1/2	.281
	Cooked, diced	6-3/4	.422
Vanilla		8	.500
Vegetables, mixed			
Frozen	Cooked, drained	6-1/2	.406
Vinegar		8-1/4	.516
Wheat, rolled (USDA)		3	.188
Worcestershire sauce		9	.562
Yeast			
Active dry		5-1/4	.328
Compressed.		7-1/2	.469

Appendix C.--Worksheet For Calculating The Contribution of a Recipe to The Type A Lunch Requirements

All quantity recipes for Type A school lunches should be evaluated to determine any contribution the recipe or variation of the recipe makes to the protein-rich food, vegetable and fruit, or bread requirement of the Type A lunch.

The worksheet reproduced on the following pages should be used for calculating and evaluating the contribution of a school lunch recipe to the Type A lunch requirements as illustrated in table 3. Detailed instructions for completing the worksheet are provided below.

INSTRUCTIONS FOR COMPLETING WORKSHEET

School or Company (upper right hand corner).—Record name of school or company.

Filled in by (upper right hand corner).—Enter name of person(s) completing the worksheet.

Date (upper right hand corner).—Record date on which worksheet was completed.

Column 1.—Card No.

Enter section designation and card number of the recipe or variation.

Column 2.—Name of recipe or variation.

Record name of recipe or variation.

Column 3.—Ingredient and descriptive terms.

Enter the names of ingredients and descriptive terms for all protein-rich foods, vegetables and fruits, and breads that are listed in the recipe or variation of the recipe. Record the ingredient as it is described in the recipe; for example, "Onions, quartered".

(If this worksheet is used in recipe development, all ingredients in the recipe can be listed in order to facilitate the standardization of yields and contributions, if any, while balancing the formula.)

Column 4.—Quantity of ingredient given in recipe (weight or measure).

Enter the weight or volume measure of ingredients listed on the recipe card in the weights and measures columns. (When the recipe has ingredients for making bread, the entry would be the number of portions of bread, such as "100 portions".)

Columns 5, 6, 7, and 8.

If the ingredients listed in column 4 of this worksheet are prepared at school, i.e., chopped, dried, reconstituted, etc.; or purchased in cans, packages, or loaves, a Marketing Guide should be developed using columns 5, 6, 7, and 8. If ingredients are not prepared at school, omit columns 5, 6, 7, and 8 and proceed to column 9.

Columns 5 and 6.—Quantity of a prepared food from a purchase unit in PA-270.

In column 5, record the type of purchase unit in which the ingredient is most often purchased using data under "Purchase unit" in PA-270, Food Buying Guide (7).

In column 6, record the quantity of prepared ready-to-cook or ready-to-serve food for the purchase unit using data under "Additional yield information" or "Serving per purchase unit" in the Food Buying Guide (7).

Columns 7 and 8.—Calculated quantity to purchase.

In column 7, to determine the unrounded quantity to purchase, divide approximate weight or measure in column 4 by quantity to purchase from a purchase unit in column 6 to get calculated quantity to purchase in pounds, cans, packages, loaves for column 7 (col. 4 ÷ col. 6 = col. 7).

In column 8, round the quantity to purchase in column 7 (pounds, cans, packages, loaves) according to table 6, Rules for Rounding Amounts to Purchase for a Marketing Guide. This figure is the quantity to purchase and should be listed in the Marketing Guide on the back of the recipe card.

Column 9.—Servings per purchase unit in PA-270.

Enter the number of servings obtained from a purchase unit as listed in PA-270, Food Buying Guide (7). If the food is cooked in the process of preparing the recipe, use the figure for the cooked food most similar to the finished product. (This column will be blank when the recipe has ingredients for making bread.)

Columns 10, 11, 12, 13, 14, and 15.—Amount of contribution.

Use the appropriate columns for recording size of serving and amount of each kind of contribution—protein-rich food, vegetable and fruit, and bread.

Columns 10, 12, and 14.—Size of serving.

Record size of serving that corresponds to number of servings in column 9. Use appropriate data on serving size or portion from the Food Buying Guide (7).

Columns 11, 13, and 15.—Calculated number of servings.

Record the calculated number of servings which is obtained by multiplying column 9 by column 8, or if no entry use column 4. (Col. 9 x col. 8 or col. 4 = col. 11, 13, or 15.)

(When a recipe includes ingredients for making bread, record number of portions in column 15 as was entered in column 4.)

Totals and Portions:

To determine the total contribution for each of the three components of the lunch—protein-rich food, vegetable and fruit, and bread—add the numbers in columns 11 or 13 or 15.

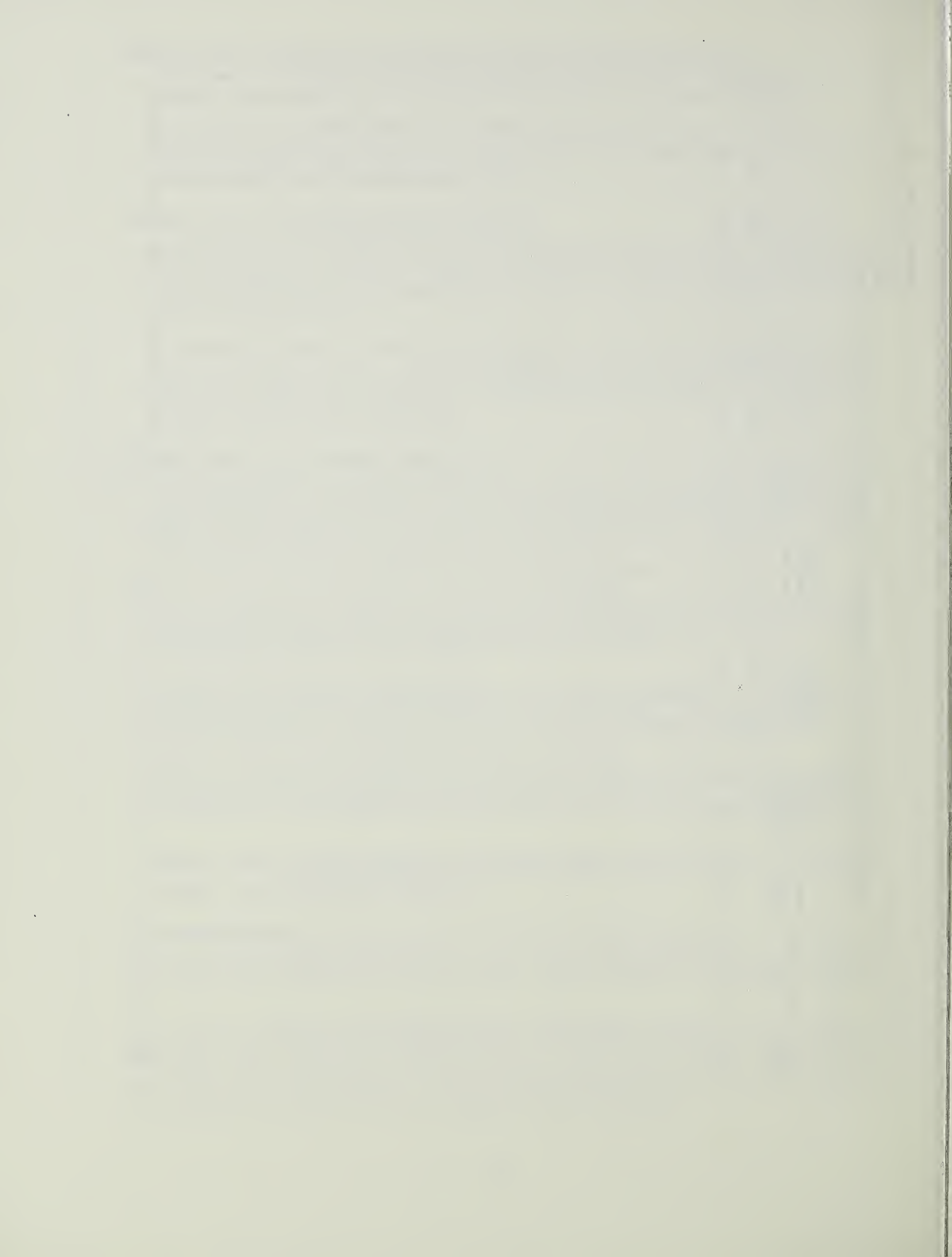
Each recipe or variation of the recipe providing 100 servings, according to the criteria for evaluating a recipe, will make a contribution to the Type A lunch. The size of portion and any contribution a recipe makes to the Type A lunch requirements should be recorded on the worksheet according to directions on page 12 in this publication.

School or Company _____
Filled in by _____
Date _____

WORKSHEET FOR CALCULATING THE CONTRIBUTION OF A RECIPE TO THE TYPE, A LUNCH REQUIREMENTS

[illegible]

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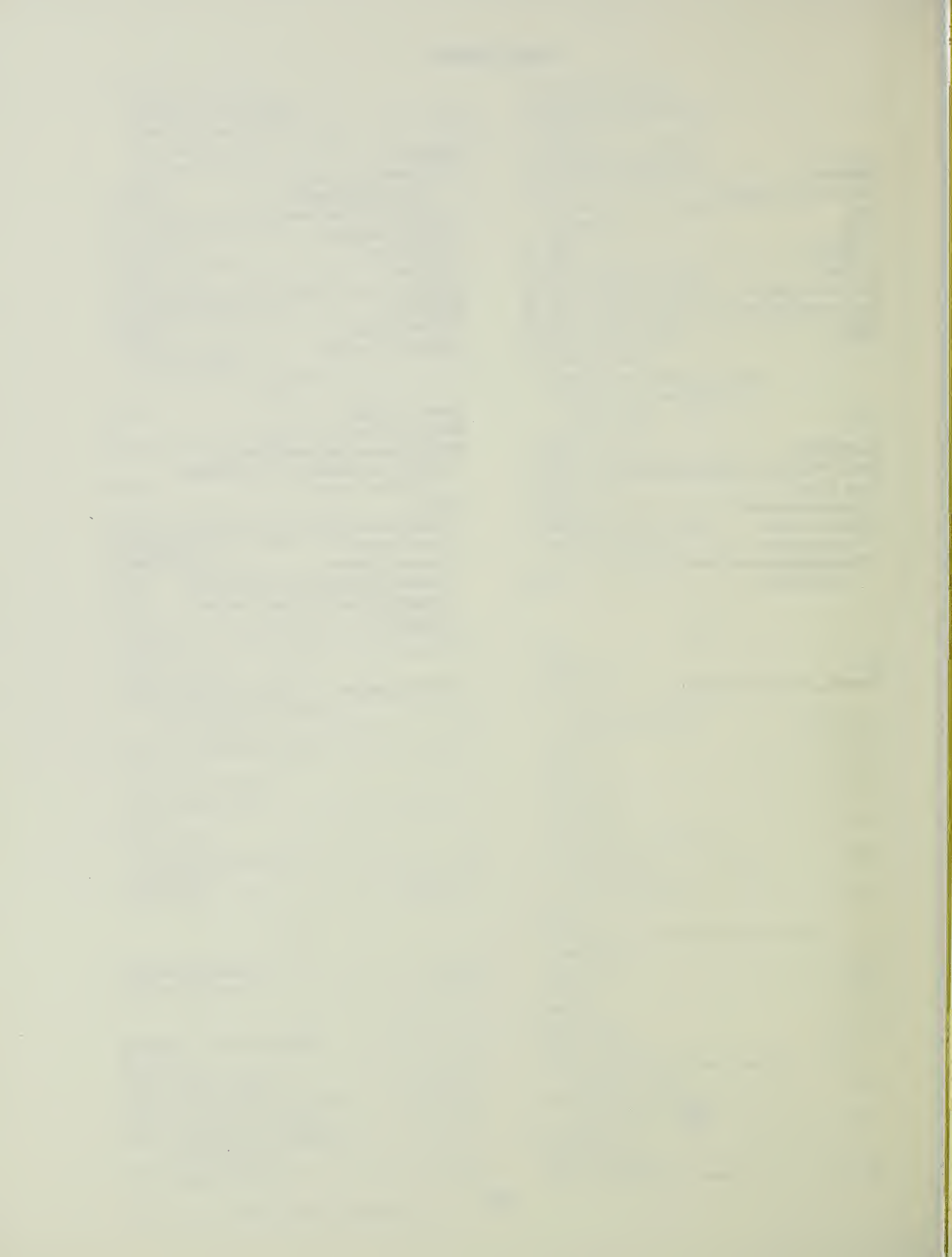
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